

MARINE RECREATIONAL INFORMATION PROGRAM

FY Project Plan

**Measurement Error in the CHTS and ALDS: Assessing the Effects of Length of Recall Period
on Data Quality**

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1. Overview

1.1. Background

The current designs of the CHTS and ALDS involve an interviewer-administered, telephone survey, during which one respondent (typically) reports on the fishing activities for him- or herself as well as all other anglers in the household. The respondent is queried about characteristics of anglers in the household, number of days in the past two months that anglers fished, and then details about the trips for each of the days on which the angler fished.

With the exception of some discussion of the use of panel surveys (to improve efficiency) and the internet as a mode of data capture, the NRC report on Recreational Fisheries Survey Methods did not address measurement error issues. See pages 6, 17, 46, and 48 of the report for the limited discussion.

We know little about the extent to which measurement error impacts data quality for the CHTS and the ALDS. Measurement error in the reporting of a valid license will impact dual frame designs (which need to account for probability of sampling from both frames) whereas error in the reporting of the number of trips or the details of those trips will impact the overall estimates of effort, and therefore, the estimates of catch.

Although there are many design features of the CHTS and the ALDS which could be examined with respect to assessing measurement error, one factor which may have a large impact on the quality of CHTS and ALDS estimates is the use of a 2-month recall period for reporting effort.

With respect to length of recall period, we know that the longer the length of the recall period, (that is, the time between the behavioral event and the date of the interview) the greater the likelihood that the event will not be reported. This has been well documented across the reporting of many different types of behaviors (e.g., purchases, unemployment spells, health care utilization) and often follows a pattern of exponential decay—that is, higher levels (more accurate reporting) of reporting for events close in proximity to the date of the interview, with sharp fall off as the recall period increases. Figure 1 illustrates this pattern using the 2008 CHTS data. We see in Figure 1, a higher frequency of fishing trips reported for trips falling within a week or two prior to the interview than for trips occurring earlier in the two month reference period. The exception to the pattern is for Wave 5—but the general pattern even with Wave 5 is for higher reporting of trips for trips closest to the date of the interview.

Design

Experimental design would allow for the measurement of the effects of various design features in the CHTS and/or ALDS. We propose an experiment to assess the effects of the two month recall period on data quality. The study would involve interviewing random replicates across time, such that, for example, for some respondents a fixed reference week is the previous week, for some

respondents it is two weeks ago, for some respondents it is three weeks ago, etc., etc. The underlying assumption is that the fishing experience for a fixed week across the replicate samples is equivalent and that the shortest recall period results in the most accurate (lowest rates of omissions) data.

So as to be relatively efficient, we would propose that an angler license frame be used; the methodology would involve the fielding of 1/8th of the total sample each week for an eight week period. Each week, the reference period for the study would shift by one week (see Table 1); under the assumption of equal rates of fishing among the random replicates, the design would allow us to measure the effects of declining recall (or more specifically reporting) as the recall period between the interview date and the fishing trip increases. For example, in Table 1, we only focus on examining effort data for the period between May 23 and May 30th. Depending upon the field date, for some respondents this week represents a 1-week recall period, while for others it represents a 2-week or longer recall period.

Critical to the success of such a study is the successful fielding and completion of cases during the week they are assigned.

To detect a difference in percentage of anglers who fished in a given week of 5% or greater, we will need to have 305 completed interviews per week. To detect a 4% difference between adjacent weeks would require a sample size of just less than 500 cases per week. We would propose the smaller sample, resulting in 2440 completed interviews. Assuming a 25% response rate, 10,000 total cases should be sampled and fielded.

1.2. Project Description

1.3. Objectives

The objectives of the research are to assess the extent to which the length of the recall period impacts the quality of the estimates of effort in the CHTS and/or ALDS. The information derived from the experiments will assist in redesign efforts for CHTS and/or ALDS, regardless of whether or not the studies continue to be conducted by telephone or move to a self-administered (mail or internet based) questionnaire.

1.4. References

2. Methodology

2.1. Methodology

2.2. Regions

2.3. Geographic Coverage

2.4. Temporal Coverage

2.5. Frequency

2.6. Unit of Analysis

2.7. Collection Mode

3. Communications Plan

3.1. Internal

3.2. External

4. Assumptions and Constraints

4.1. New Data

4.2. Track Costs

4.3. Funding Vehicle

ST Data Collection Contract

4.4. Data Resources

4.5. Other Resources

4.6. Regulations

4.7. Other

The ability to successfully contact anglers is dependent upon the completeness and quality of contact information (telephone) numbers included in the sample frame.

5. Risk

5.1. Project Risk

Table 1: Project Risk

| | | | |
|------------------|-------------|------------------|--------------------------|
| Risk Description | Risk Impact | Risk Probability | Risk Mitigation Approach |
|------------------|-------------|------------------|--------------------------|

6. Final Deliverables

6.1. Additional Reports

6.2. New Data Sets

6.3. New Systems

7. Project Leadership

7.1. Project Leader and Members

Table 2: Project Members

| Project Role | Name | Organization | Title |
|--------------|------|--------------|-------|
|--------------|------|--------------|-------|

8. Project Estimates

8.1. Project Schedule

Table 3: Project Schedule - Major Tasks and Milestones

| # | Schedule Description | Planned Start | Planned Finish | Prerequisites | Milestones |
|---|----------------------|---------------|----------------|---------------|------------|
|---|----------------------|---------------|----------------|---------------|------------|

8.2. Cost Estimates

Table 4: Cost Estimates

| Project Need | Cost Description | Date Needed | Estimated Cost |
|--------------|------------------|-------------|----------------|
| TOTAL | | | \$0.00 |